



*Tools for data recovery experts*

## ***Guide for using HddSurgery™ head change tools:***

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- ***HDDS Sam T133/T166 p2-3 (2 or 3 platters)***
- ***HDDS Sam F1/F2/F3/F4 p2-3 (2 or 3 platters)***



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# 1. Introduction

This guide is intended as a short course in handling of our tools for professionals in data recovery. It is assumed that the user is experienced in data recovery and familiar with "traditional" ways of saving data. This manual should not be taken as a guide for training.

Using these tools without adequate software support is not recommended. It is recommended to use some of the proven systems for cloning, such as Ace Lab, Salvation Data, Copy-r and other products.

It is possible to recover data without HddSurgery™ tools. In many cases, the known processes of hard drive head replacement are effective and sufficient. The general idea behind HddSurgery™ tools was to make sure that the process of replacing damaged hard drive heads goes with no errors. The use of HddSurgery™ tools prevents the ferromagnetic read/write heads to come in any kind of contact with the platter i.e. disk surface or other read/write heads. Also, with some basic procedures and short training, it is possible to let junior data recovery technicians handle complex tasks. With the development of these tools, we are trying to eliminate the element of luck that usually accompanies the process of data recovery.

Experienced data recovery technicians or engineers can have great success even without our tools, but they can have absolute security only by using HddSurgery™ tools.

Non-contact head replacement implies that there is no contact between the heads, or between heads and platters in the process of dismounting the donor heads and mounting heads on the patient drive. Traditional techniques of replacing the heads imply contact between the heads and contact of heads with the platters in data area. These problems especially come to light on drives that have suffered some form of physical damage.

A donor selection process is not covered by these guidelines. If you have questions about compatibility, you can send them to HddSurgery™ support team on [support@hddsurgery.com](mailto:support@hddsurgery.com)

HddSurgery™ is not responsible for any eventual damage caused by usage of our tools.

HddSurgery™ is not responsible for the data stored on the patient or donor hard drives.



## 2. HddSurgery™ head change tools

Samsung hard drives belong in the category of disks that "park heads" above the magnetic platters. That way of functioning implies that, in a situation when the drive is powered off, the heads are located on the surface that has no sensitive magnetic material. This allows drive to start the motor to the required speed.

The purpose of HddSurgery™ head change tools is to enable safe heads passage over the "data" area above platters surface, and to provide non-contact transfer to patient disc.

- HDDS Sam T133/T166 p2-3 (2 or 3 platters)

This head change tool is made for safe and easy head replacement on Samsung T133 and Samsung T166 hard drives with 2 or 3 platters.

- HDDS Sam F1/F2/F3/F4 p2-3 (2 or 3 platters)

This head change tool is made for safe and easy head replacement on Samsung F1, Samsung F2, Samsung F3 and Samsung F4 hard drives with 2 or 3 platters. As there is no conceptual difference between these two tools, we will explain only the functioning of HDDS Sam T133/T166 p2-3 tool. In the case of HDDS Sam F1/F2/F3/F4 p2-3, apply the same procedure.

During the whole procedure of head replacement, heads and platters do not have contact. Heads are lifted over NON-data area and safely guided over the platters. In process of installing back the donor head same procedure needs to be done. Heads are guided over platters with no contact and safely deployed in non-data area.



### 3. Supported models

| HDDS Sam F1/F2/F3/F4 p2-3 (2 or 3 platters) |         |         |
|---|---------|---------|
| SATA  |         |         |
| HA101UJ                                     | HD153UI | HA642JJ |
| HD102SI                                     | HD153WI | HD642JI |
| HD102UJ                                     | HD154UI | HA642JI |
| HD103UJ                                     | HD501IJ | HA751LJ |
| HE103UJ                                     | HA501IJ | HD753LJ |
| HD103UI                                     | HD502IJ | HE753LJ |
| HA103UI                                     | HE502IJ | HD753LI |
| HD103SI                                     | HD502JI | HA753LI |
| HD103SJ                                     | HA502JI | HD754JJ |
| HD105SI                                     | HD642JJ | HD754JI |
|   |         | HD204UI |
|   |         | HD155UI |
|   |         | HD322GJ |
|   |         | HD256GJ |
|   |         | HD255GJ |
|   |         | HD166GJ |
|   |         | HD165GJ |
|   |         | HD203WI |
|   |         | HD153WI |
| HDDS Sam T133/T166 p2-3 (2 or 3 platters)   |         |         |
| PATA  | SATA    |         |
| HD300LD                                     | HD300LJ |         |
| HD400LD                                     | HD400LJ |         |
|   | HD301LJ |         |
|   | HD401LJ |         |
|   | HD250KJ |         |
|   | HD320KJ |         |
|   | HD321KJ |         |
|   | HD500LJ |         |
|   | HD501LJ |         |



## 4. Head replacement process

### Step 1 – Handling the tool

When not in use, the tool should always be kept in a wooden box delivered with the tool. This way of keeping the tool prevents any possible damage to it which could appear when not handled correctly.

When taking the tool out of the box, always hold it for the shank. Never hold the tool in the part where the head lifting snouts are.

Due to sensitivity of hard drive platters to dust and any kind of contamination, be sure to clean the tool before it's use. Tool can be cleaned with a piece of cotton wool and alcohol. When cleaning the head lifting snouts, be extremely gentle.



*Picture 1. (handling the tool )*



## Step 2 - Mounting the tool on actuator arms

Remove screws holding flat cable contact and with a finger push contact from the bottom upwards to release it. The pressure from below may cause flat cable contacts to pop out and possibly damage platters, so hold firmly top of a flat cable contact with another hand while pushing related plastic. Before applying pressure remove screws from their holes.

Carefully center the tool over the center hole of the hard disc head. Tighten the screw to perform tool installation.



*Picture 2. (mounting the tool )*

With your right hand make sure that the tool shank with snouts remains in the area outside of the platters.

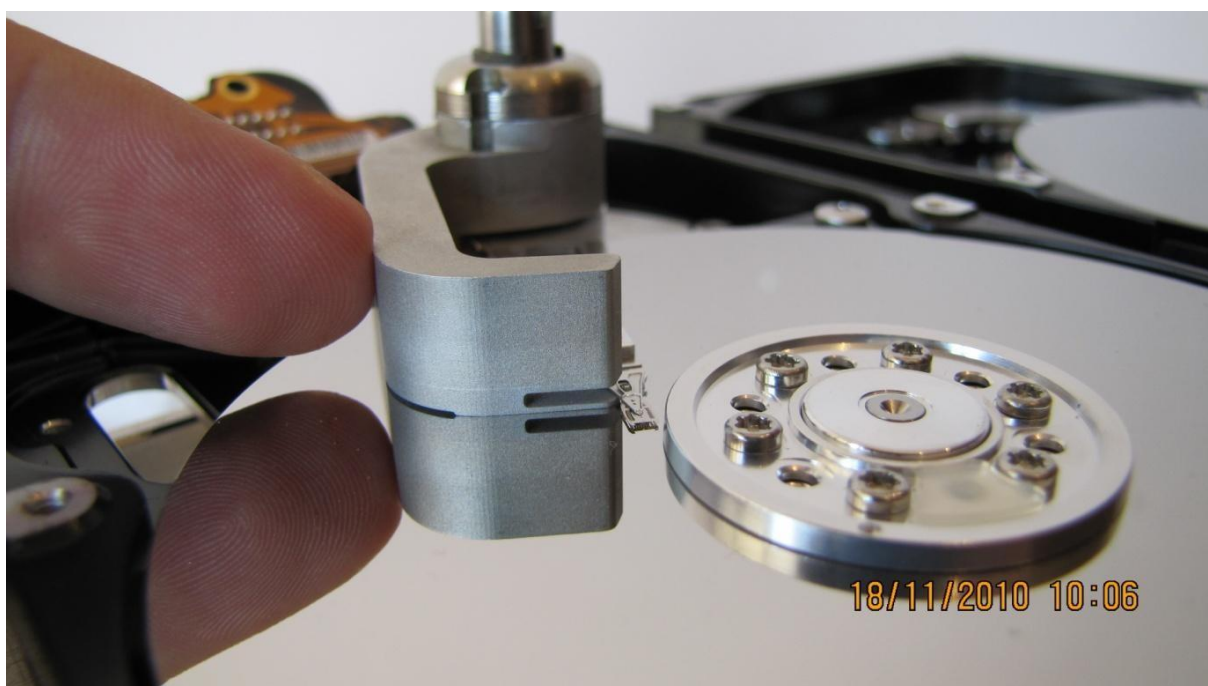
**!!! IMPORTANT !!!**

Be sure to tighten the screw in order to ensure good contact and proper tool height.



## Step 3 - Lifting the heads

By horizontally moving tool shank we slide the tool over platters. Construction of tools enables heads to lift on tool snouts by relatively small force. If you feel that the necessary force is greater than the expected, check tool positions and possible damage to the HDA assembly. Push the tool as far as limiter is allowing.



*Picture 3. (lifting the heads)*



## Step 4 - Securing the tool

The tool has a hole at its edge, which coincides with the hole in the head. The leftmost position is necessary to ensure the bound between tool and actuator arm. Securing is being done with the securing pin.



*Picture 4. (securing the tool)*

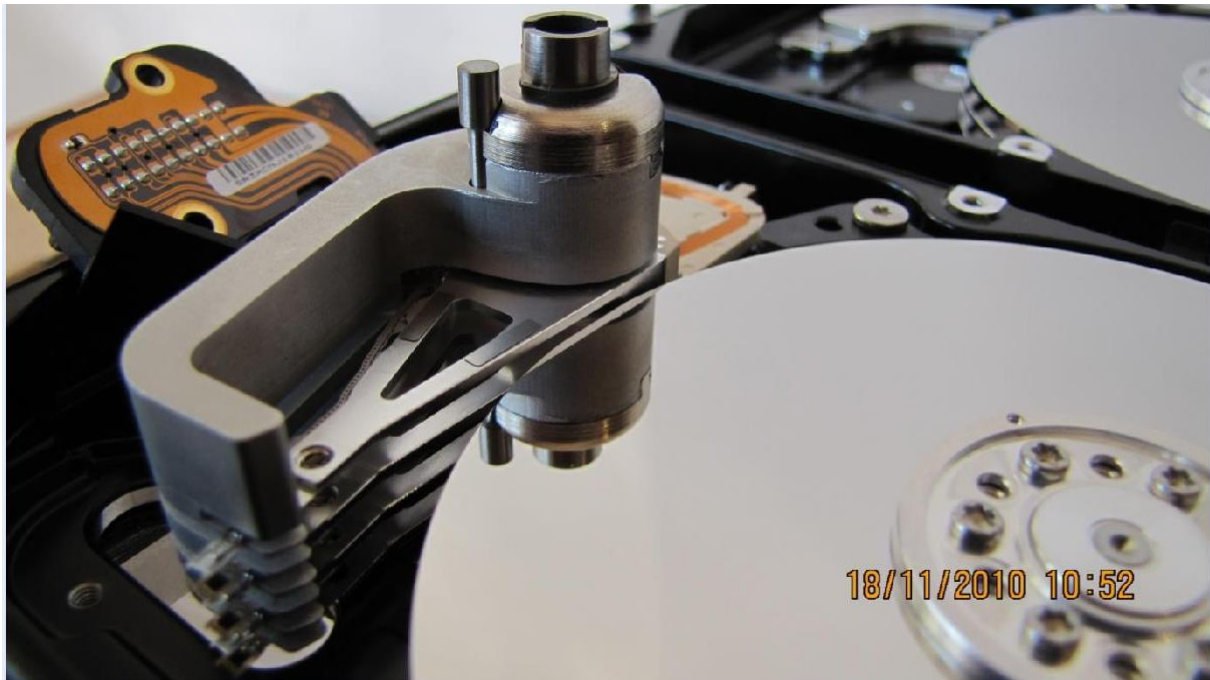
### **!!!IMPORTANT!!!**

If the connection of the tool and actuator arms is not properly engaged, heads slipping is possible during disassembling.



## Step 5 - Moving the tool outside of platters area

By vertical scrolling move the tool (previously secured by pin) to the initial position.



*Picture 5. (moving secured tool with heads outside of platters area)*



## Step 6 - Dismounting the heads

With the help of a standard flat screwdriver unscrew the tool together with the heads. Hold the tool with one hand because of the possibly contact with the platters. Turn screw driver counter clockwise until heads are free.



*Picture 6. (dismounting the heads)*



## Step 7 - Mounting the heads in a new drive

Use the same screwdriver to screw the heads on new hard drive. When screwing the heads tighten the screw too, just in case it got loosen up during the manipulation. This operation is necessary because of possible changes in height! Turn the screw driver clockwise.



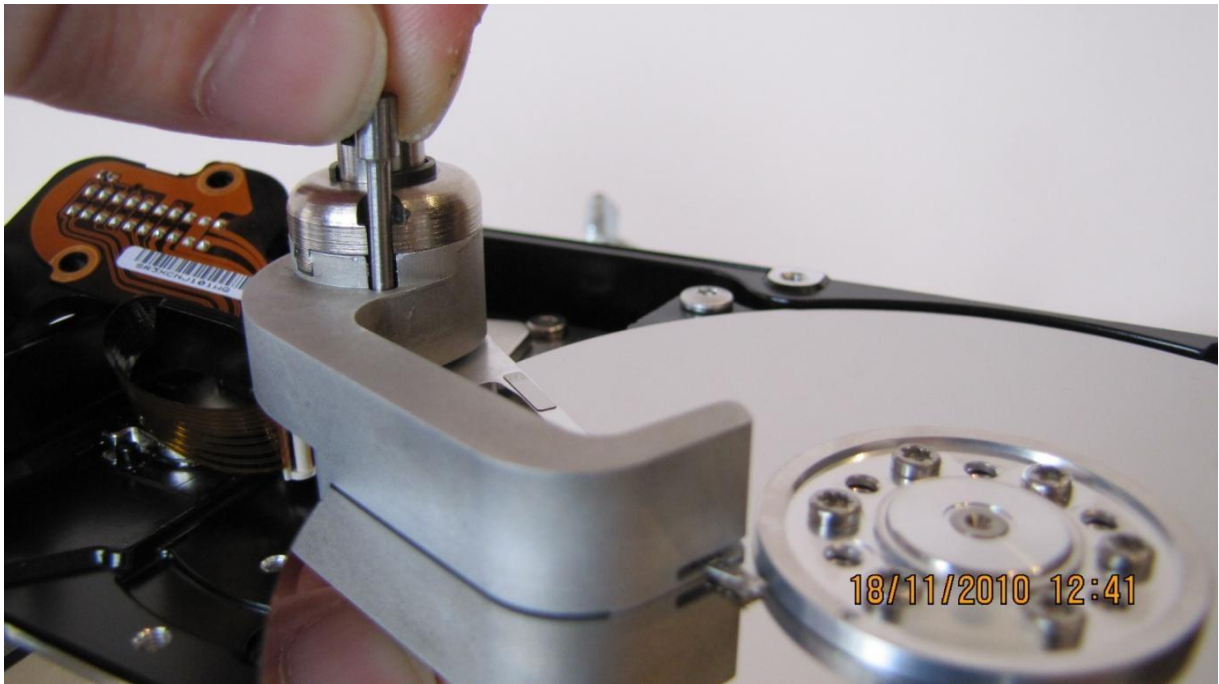
*Picture 7. (mounting the heads on a patient drive)*

By horizontal force return the head back towards the central section of the platters.



## Step 8 - Removing the pin

Carefully remove the securing pin when heads are above the parking zone.



*Picture 8. (remove the securing pin)*



## Step 9 - Removing the tool outside of platters

Horizontally push tool shank with a finger to return the tool outside of platters.

### **!!! IMPORTANT !!!**

With your other hand, hold back side of the head arm (magnetic coil) to prevent heads from moving.



*Picture 9. (returning the tool outside of platters)*



## Step 10 - Dismounting the tool

Take out the screw and remove the tool. While loosening use the assisting tool to make counter force.



*Picture 10. (removing the tool, using the assisting tool)*

Put the lid back and close the disc. Put pcb back and clone the drive.

You can find more information about this tool and many other tools used for data recovery on our website.

<http://www.hddsurgery.com/>

Also you can watch the videos that show how this tool works on our YouTube channel.

<http://www.youtube.com/user/HddSurgery>